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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,336	08/04/2000	Hiroshi Ueda	Q60276	2028

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EXAMINER

MAKI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/633,336

Applicant(s)

UEDA ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-17 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-17 and 19-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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- 1) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 2) Claims 1-6, 8-17 and 19-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1 and 17, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. new matter) is the subject matter of "inserting at least one of the lug groove ribs into a corresponding carved groove formed on said tread surface of the green tire while rotating the mold relative to the green tire" (emphasis added). **First:** The original disclosure describes inserting one lug groove rib into one carved groove instead of inserting at least one lug groove rib into one carved groove. The "at least one" language means that claims 1 and 17 include the subject matter of inserting *plural* lug groove ribs into one carved groove. Applicant did not have possession of this subject matter at the time the original disclosure was filed. For example, the original disclosure fails to describe inserting two lug ribs into one carved groove and fails to describe how such is accomplished. **Second:** The original disclosure describes "the mold" as being a half split mold consisting of an upper mold 11 and a lower mold 12.

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The original disclosure describes the upper mold as being "freely rotatable" *and* the lower mold as being "fixed". The original disclosure fails to describe rotating the upper mold 11 *and* the lower mold 12 and thereby fails to reasonably convey the limitation of "rotating the mold".

3) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4) Claims 1-6, 8-17 and 19-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the scope and meaning of "inserting at least one of the lug groove ribs into a corresponding carved groove formed on said tread surface of the green tire while rotating the mold relative to the green tire" (emphasis added) is unclear. First: It is unclear if claim 1 requires using "at least one lug groove rib [singular]" or "lug groove ribs [plural]" in the claimed method for manufacturing a pneumatic tire. Second: It is unclear clear if the description of "rotating the mold" requires rotating the entire mold. If not, why not?

As to claims 15 and 16, it is unclear if the step of "rotating the mold" set forth in claim 1 requires rotating the upper and lower molds set forth in claim 15.

In claim 17, it is unclear if the charging step and the inserting step are (1) separate mutually exclusive steps or (2) the charging step includes the inserting step.

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6) Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4682641) in view of German '414 (DE 2301414).

Watanabe et al, directed to manufacturing a tire using carved grooves to eliminate the problem of belt wave (col. 1 lines 21-27 and col.2 lines 1-5), discloses a process for manufacturing high lug pneumatic tires for use with construction machinery comprising providing an unvulcanized tire (green tire) made by successively winding a carcass ply, a belt ply, and a tread rubber on a drum (col. 1 lines 6-17, col. 2 lines 50-52), three dimensionally moving the cutters 83, 84 along a predetermined path to cut off (carve) a portion of the tread rubber of the unvulcanized tire 5 to thereby form a quasi pattern of grooves 86 which are substantially complementary to the shaping surface of a vulcanizing mold to be used in a next tire manufacturing process (col. 4 line 64 to col. 5 line 2); and vulcanizing the tire with the shaping surface of the vulcanizing mold matching the quasi pattern of grooves 86 on the tire (col. 6 lines 52-55). As acknowledged by applicant on page 5 of the response filed 8-19-02, "This means that the grooves 86 in the tread surface of the green tire 5 are given a shape complementary to the lug groove ribs that form the shaping surface of the vulcanizing mold." At col. 6 lines 55-61, Watanabe et al explains the benefit of this process as follows: "Since the shaping surface and the quasi pattern of grooves 86 are substantially complementary to each other, any flow of the rubber as it is vulcanized is small. This eliminates any tendency to form recesses in the inner side of the lugs upon the flow of the rubber into

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the grooves of the mold" (emphasis added). Hence, Watanabe et al substantially discloses the claimed process except for the step of rotating the mold (Watanabe et al uses a mold but is silent as to "rotating the mold").

German '414 discloses a tire mold with simple extraction comprising a fixed upper half mold and a freely rotatable lower mold. The upper half mold has two guides with inclined edges. The lower half mold has one guide. The mold charge (green tire) is loaded into the lower half mold and the lower half mold is raised to close the tire mold. During closing of the mold, the guide of the lower half mold slides over the inclined edges of the top guides which causes it to rotate into a central position in which the mold completes its closure. Before opening the press, the lower guide is withdrawn, so that the lower half of the mold is free to rotate in line with inclinations or spirals on the tire.

As to claim 17, it would have been obvious to one of ordinary skill in the art to insert lug groove ribs of the mold into the carved grooves formed on the tread surface of the green tire "while rotating the mold relative to the green tire" since: (a) Watanabe et al suggests inserting lug groove ribs of a tire mold into the carved grooves to prevent the problem of belt wave (the lug groove ribs of the mold are thereby inserted during closing of the mold) and (b) German '414 suggests using a tire mold having a fixed mold half and a freely rotatable mold half which rotates during closing of the mold to obtain the benefit of simple extraction.

Furthermore, it would have been obvious to form the unvulcanized tread rubber, which is wound on a belt ply (belt member) and a carcass (ply), by extrusion since it is

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taken as well known / conventional per se in the tire making art to successively wind a carcass ply, belt ply and tread on a drum wherein the tread (a sheet of rubber) is formed by extrusion. It is noted that applicant has not challenged the official notice of "well known / conventional per se in the tire making art to successively wind a carcass ply, belt ply and tread on a drum wherein the tread is formed by extrusion". In particular, applicant has failed to assert novelty per se for "successively winding a carcass ply, belt ply and tread on a drum wherein the tread is formed by extrusion". These steps are used to form a tire. The suggestion to form a tire comes not from the official notice but from Watanabe et al's teaching to form a tire.

As to the carved groove extending in the direction of the lug groove, note the above described process of Watanabe et al. In any event: it would have been obvious to carve the unvulcanized tire of Watanabe et al such that the carved grooves are "at positions on a tread surface of the green tire corresponding to the lug grooves such that the carved grooves extend in substantially the same direction as the lug grooves" since Watanabe et al teaches cutting (carving) a quasi pattern of grooves 86 which are substantially complementary to the shaping surface of a vulcanizing mold which is used to vulcanize a tire having high lugs and deep lug grooves so that any flow of the rubber as it is vulcanized is small to thereby eliminate any tendency to form recesses in the inner side of the lugs upon the flow of the rubber into the grooves of the mold.

7) **Claims 1-5, 10-12, 15-16 and 20-21 are under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of German '414 (DE**

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2301414) as applied above and further in view of at least one of Japan '304 (JP 53-69304), Japan '312 (JP 5-229312) and Japan 004 (JP 56-25004).

As to claim 1, it would have been obvious to shape the carved grooves, which are molded using a mold having one half rotatable relative to the other half of the mold as per the teachings of German '414, such that each of the carved grooves (from which lug grooves of corresponding shape are formed) has a substantially a triangular shape that widens gradually from a side of a tread center to a side of a tread end in view of (1) Watanabe et al's teaching to cut (carve) the tread so that the shape of the carved grooves is substantially complementary to the shape of the lug grooves of a "heavy load tire" (tire for use with construction machinery) and (2) at least one of (a) Japan '304's suggestion to shape lug grooves of a "heavy load tire" (heavy transport tire having *low noise*), such that each lug groove, which defines a straight centerline 7, has substantially a triangular shape that widens gradually from a side of a tread center to a side of a tread (see figure 3), (b) Japan '312's teaching to chamfer edges of the lug grooves of a tire such that each lug groove, which is straight, has substantially a triangular shape that widens gradually from a side of a tread center to a side of a tread (see for example figure 4) in order to *improve vibrational riding comfortableness* and (c) Japan '004's suggestion to shape lug grooves of a tire such that each lug groove, which defines a straight centerline, has substantially a triangular shape that widens gradually from a side of a tread center to a side of a tread (see figure 3).

As to claims 2-5, the limitations therein regarding the configuration of the carved grooves and consequently the configuration of the lug grooves would have been

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obvious in view of (a) Watanabe et al's teaching to form lug grooves from and corresponding to the carved grooves and (b) the lug groove configuration suggested by at least one of Japan '304, Japan '312 and Japan '004. As to the inclination of 5-45 degrees, Japan '004 suggests inclining the lug groove at 0-10 degrees.

As to claims 10-12, the limitations of the volume of the carved groove being 0.4-1.2 times the volume of the lug groove (claim 10), 0.7-1.0 times the volume of the lug groove (claim 11) or 0.5-0.9 times the volume of the lug groove (claim 12) would have been obvious in view of the above noted suggestion from Watanabe et al to form the carved grooves such that they are substantially complementary to the lug grooves; it being noted that Watanabe et al states "Since the shaping surface and the quasi pattern of grooves 86 are substantially complementary to each other, any flow of the rubber as it is vulcanized is small. This eliminates any tendency to form recesses in the inner side of the lugs upon the flow of the rubber into the grooves of the mold" (emphasis added).

As to claims 15 and 16, German '414 suggests the claimed upper mold and lower mold and Watanabe et al suggests fitting lug groove ribs in the carved grooves (such fitting necessarily occurring during "charging" of the mold).

As to claims 20 and 21, the limitations therein would have been obvious in view of German '414's teaching to attach a guide to a freely rotatable mold half and attach guides to another fixed mold half so that the freely rotatable mold half rotates during closing of the mold.

8) Claims 8 and 19 are under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of German '414 (DE 2301414) and at least

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one of Japan '304 (JP 53-69304), Japan '312 (JP 5-229312) and Japan 004 (JP 56-25004) as applied above and further in view of Sipe (US 4194548).

As to claims 8 and 19, it would have been obvious to carry out the carving twice using a cutter in view of Sipe's suggestion to cut (carve) a single groove using a plurality of cutters (knives) to reduce resistance of the rubber to the cutting edge - Sipe specifically teaching using two knives to cut a single groove so that V-shaped groove is formed (page 1 lines 11-17, page 1 line 51 to page 2 line 5).

9) **Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of German '414 (DE 2301414) and at least one of Japan '304 (JP 53-69304), Japan '312 (JP 5-229312) and Japan 004 (JP 56-25004) as applied above and further in view of Clayton (US 4,237,955) and Tsurunaga et al (US 5002110).**

As to claims 6 and 9, it would have been an obvious alternative to open the carved groove from one tread end to another tread end since Clayton and Tsurunaga et al show lug grooves which open to both tread ends as being an alternative to lug grooves which open to only one tread end (see figures 13-18 of Clayton and figures 1 and 3 of Tsurunaga et al).

10) **Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 4,682,641) in view of German '414 (DE 2301414) and at least one of Japan '304 (JP 53-69304), Japan '312 (JP 5-229312) and Japan 004 (JP 56-25004) as applied above and further in view of Sato et al (US 5404925) or Roger (US 4194548).**

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As to claims 13-14, it would have been obvious to use a belt member having a relatively low expansion rate (claim 13) such as 3% or less (claim 14) as the belt ply in Watanabe et al since a belt member having a relatively low expansion rate such as 3% or less for a pneumatic tire is well known / conventional per se in the tire art as evidenced by Sato et al (col. 4 lines 27-36, especially lines 29-30) or Roger (col. 2 lines 1-32, especially lines 19-20 and 25-27).

Remarks

11) Applicant's arguments with respect to claims 1-6, 8-17 and 19-21 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 7-29-03 have been fully considered but they are not persuasive.

With respect to applicant's argument that the prior art fails to teach the feature of "while rotating said mold relative to said green tire", note newly cited German '414 which discloses rotating a freely rotatable mold half relative to a mold charge (green tire) during closing of the mold.

12) No claim is allowed.

14) Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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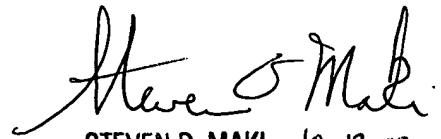
TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is 703-308-2068. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven D. Maki
October 17, 2003


STEVEN D. MAKI 10-17-03
PRIMARY EXAMINER
GROUP 1360
AU 1733